

Claims:

1. A particle-optical apparatus provided with a focusing device (11) having an optical axis (10) for the purpose of focusing a beam (1) of electrically charged particles upon a focus position (9), which focusing device (11) comprises:
- a magnetic lens for producing a focusing magnetic field (21) with the aid of magnetic pole pieces (4,5);
 - an electrostatic lens for producing a focusing electric field (20), in which the beam (1) undergoes an energy change,
- 10 whereby the focusing electric field (20) is placed upstream with respect to a region (23) situated between the focusing magnetic lens (21) and the focus position (9), characterized in that
- the magnetic lens is provided with permanent-magnetic material (6) for generating the focusing magnetic field (21) required for the lens action, and;
- 15 - said energy change has the form of an energy increase.
2. A particle-optical apparatus according to claim 1, whereby there is a region present around the optical axis (10) in which region both the focusing magnetic field (21) and the focusing electric field (20) are present.
3. A particle-optical apparatus according to one of the preceding claims, whereby
- 20 the sample-side pole piece (5) of the magnetic lens is made of electrically conductive material, and functions additionally as an electrode of the electrostatic lens.
4. A particle-optical apparatus according to one of the preceding claims, provided with adjustment means for rendering adjustable the focus position (9) that is to be held constant by the apparatus during imaging.